ALEPH VERSION 19.01

ALEPH and e-Payments

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1 Overview

ALEPH enables library patrons to make electronic payments (e-payments) for fines via external e-payment components. There are two different types of e-payment components:

- Self-service e-payment machines ("kiosks") which enable patrons to pay their fines themselves cashlessly.
- ALEPH GUIs which allow library staff to execute payments cashlessly

An ALEPH site can use either type of component or a combination of both, depending on the policy of the library and the third party software supplied.

2 Self-service e-Payment Kiosk

Figure 1 e-Payment kiosk in use

The following workflow shows the interaction between the e-Payment kiosk and ALEPH:

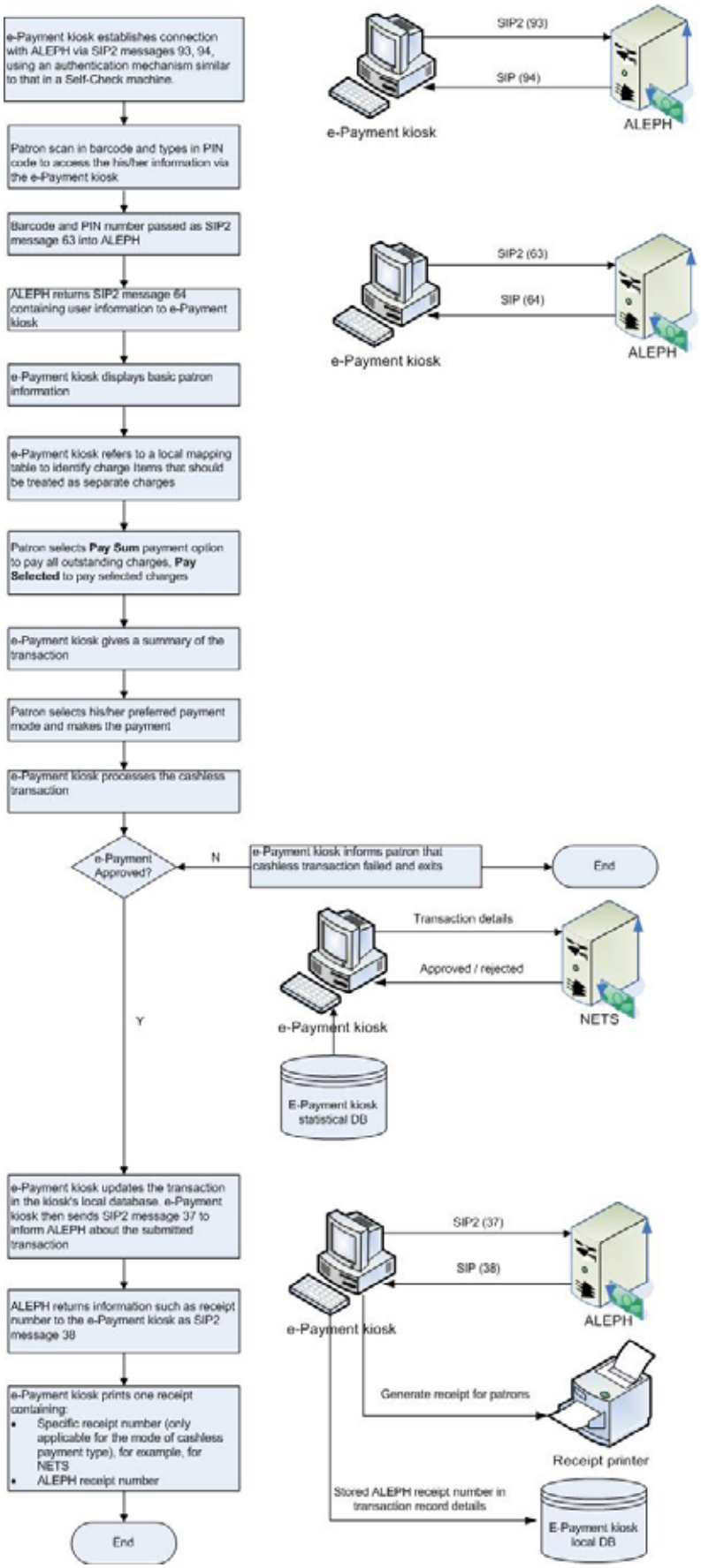

Figure 2 e-Payment kiosk workflow

2.1 SIP2 messages mapping (messages 93, 94)

Note
Fields which ALEPH supports are highlighted. Customized (non-standard SIP2-) fields appear in **bold**.

SIP2 messages 93 and 94 allow the e-Payment kiosk to establish a connection to ALEPH, using an authentication mechanism similar to Self-Check machines.

SIP2 Message 93 – Login

This message can be used to login to an ACS server program. The ACS should respond with the Login Response message. Whether to use this message or to use some other mechanism to login to the ACS is configurable in the SC. When this message is used, it will be the first message sent to the ACS.

<UID algorithm><PWD algorithm><login user id><login password><location code>

Message 93 fields	Code	ALEPH Mapping	SIP2 Standard?	Remarks
UID algorithm			Y	Optional Field. To leave blank
PWD algorithm			Y	Optional Field. To leave blank
Login user id			Y	e-Payment Kiosk login ID. E.g. KIOSK0001
Login password			Y	e-Payment Kiosk login password
Location code			Y	Optional Field. To leave blank

SIP2 Message 94 – Login Response

The ACS should send this message in response to the Login message. When this message is used, it will be the first message sent to the SC.

<OK>

Message 94 fields	Code	ALEPH Mapping	SIP2 Standard?	Remarks
OK			Y	0 or 1.

2.2 SIP2 messages mapping (SIP2 messages 63, 64)

Note
Fields which ALEPH supports are highlighted. Customized (non-standard SIP2-) fields appear in **bold**.

SIP2 messages 63 and 64 are used for the e-Payment Kiosk to query user information via message 63 and for ALEPH to respond with the patron's information via message 64.

SIP2 Message 63 – Patron Information

This message is a superset of the Patron Status Request message. It should be used to request patron information. The ACS should respond with the Patron Information Response message

<language><transaction date><summary><institution id><patron identifier><terminal password><patron password><start item><end item>

Message 63 fields	Code	ALEPH Mapping	SIP2 Standard?	Remarks
Language			Y	
Transaction Date			Y	
Summary			Y	Optional Field. To leave blank
Institution ID	AO	Z31_SUB_LIBRARY	Y	.
Patron Identifier	AA	Z308_REC_KEY	Y	Patron Barcode. Z308 type '01'.
Terminal Password	AC		Y	Optional Field. To leave blank
Patron Password	AD	Z308_VERIFICATION	Y	Patron PIN. Z308 type '01'..
Start Item	BP		Y	Optional Field. To leave blank
End Item	BQ		Y	Optional Field. To leave blank

SIP2 Message 64 – Patron Information Response

The ACS must send this message in response to the Patron Information message

<patron status><language><transaction date><hold items count><overdue items count><charged items count><fine items count><recall items count><unavailable holds count><institution id><patron identifier><personal name><hold items limit><overdue items limit><charged items limit><valid patron><valid patron password><currency type><fee amount><fee limit><items><home address><e-mail address><home phone number><screen message><print line>

Message 64 fields	Code	ALEPH Mapping	SIP2 Standard?	Remarks
Patron Status			Y	
Language			Y	
Transaction Date			Y	
Hold Items Count			Y	
Overdue Items Count			Y	Optional Field. To leave blank

Charged Items Count			Y	Optional Field. To leave blank
Fine Items Count			Y	Optional Field. To leave blank
Recall Items Count			Y	Optional Field. To leave blank
Unavailable Holds Count			Y	Optional Field. To leave blank
Institution ID	AO	Z31_SUB_LIBRARY	Y	
Patron Identifier	AA	Z308_REC_KEY	Y	
Personal Name	AE	Z303_NAME	Y	
Hold Items Limit	BZ		Y	Optional Field. To leave blank
Overdue Items Limit	CA		Y	Optional Field. To leave blank
Charged Items Limit	CB		Y	Optional Field. To leave blank
Valid Patron	BL		Y	Y/N.
Valid Patron Password	CQ		Y	Y/N.
Currency Type	BH		Y	Optional Field. To leave blank
Fee Amount	BV		Y	Optional Field. To leave blank
Fee Limit	CC		Y	Optional Field. To leave blank
Hold Items	AS		Y	Optional Field. To leave blank
Overdue Items	AT		Y	Optional Field. To leave blank
Message 64 fields	**Code**	**ALEPH Mapping**	**SIP2 Standard?**	**Remarks**
Fine Items	AV		Y	Optional Field. To leave blank
Recall Items	BU		Y	Optional Field. To leave blank
Unavailable hold items	CD		Y	Optional Field. To leave blank
Home Address	BD	Z304_ADDRESS	Y	
E-mail Address	BE	Z304_EMAIL_ADDRESS	Y	
Home Phone Number	BF	Z304_TELEPHONE	Y	
Screen Message	AF		Y	
Print line	AG		Y	
Payment Items	**EB** **ET** **EC** **EN** **EV** **EF** **EK**	**Z30_Barcode** **XXX01.Z13.Z13_TITLE** **Z31_TYPE** **Z31_NET_SUM** **Z31_GST_SUM** **Z31_SUM** **Z31_REC_KEY**	**N – new field**	**Multiple and repeating. Fields sent for each fine item.** **Condition: Z31_STATUS = 'O' and Z31_CREDIT_DEBIT = 'D'**

2.3 SIP2 messages mapping (SIP2 messages 37, 38)

> **Note**
> Fields which ALEPH supports are highlighted. Customized (non-standard SIP2-) fields appear in **bold**.

SIP2 messages 37 and 38 are used for the e-Payment Kiosk to inform ALEPH about the committed transaction (via message 37) and for ALEPH to return the ALEPH receipt number via message 38.

If in a message 37 (fee paid) sent by a machine, the sum in field BV differs from the sum of Z31-records that are sent in the same message (field EK for each Z31-record) a partial payment will automatically be done.

> **Note**
> It is not possible to create credit via SIP2. That means that if the sum in BV is higher than the sum of Z31-records the transaction will be canceled and an error message will appear.

SIP2 Message 37 – Fee Paid

This message can be used to notify the ACS that a fee has been collected from the patron. The ACS should record this information in their database and respond with a Fee Paid Response message

<transaction date><fee type><payment type><currency type><fee amount><institution id><patron identifier><terminal password><patron password><fee identifier><transaction id>

Message 37 fields	Code	ALEPH Mapping	SIP2 Standard?	Remarks
Transaction date		Z31_PAYMENT_DATE_KEY	Y	ALEPH to update Z31_PAYMENT_DATE_KEY with the Transaction Date for each Z31_REC_KEY record sent as AVK below.
Fee Type			Y	Optional Field. To leave blank
Payment Type		**Z31_PAYMENT_MODE**	**Y**	NETS / CASHCARD / EZLINK **ALEPH to update Z31_PAYMENT_MODE with the Payment Type information for each Z31_REC_KEY record.**
Currency Type			Y	Optional Field. To leave blank
Fee Amount	BV		Y	Optional Field. To leave blank
Institution ID	AO	Z31_SUB_LIBRARY	Y	
Patron Identifier	AA	Z308_REC_KEY	Y	
Terminal Password	AC		Y	Optional Field. To leave blank
Patron Password	AD	Z308_VERIFICATION	Y	
Fee Identifier	CG		Y	Optional Field. To leave blank

Transaction ID	BK		Y	Optional Field. To leave blank
E-Transaction ID	**BZ** **EK**	**Z31_EPAYMENT_ID** **Z31_REC_KEY**	**N – new field**	**Multiple and repeating.** **BZ consist of a combination of Kiosk transaction ID [varchar(10)] and NETS Transaction ID [varchar(20)]. Field sent for each charge items that the patron paid.** **EK represents the Z31_REC_KEY of the charge items that the patrons paid. Field sent for each charge items that the patron paid.** **ALEPH to update Z31_EPAYMENT_ID with the Transaction ID for each Z31_REC_KEY sent as EK.**
Terminal IP	**EI**	**Z31_PAYMENT_IP**	**N – new field**	**IP address of the Kiosk performing the transaction.** **ALEPH to update Z31_PAYMENT_IP information with Terminal IP information for each Z31_REC_KEY sent as EK.**
Terminal Login ID	**EA**	**Z31_PAYMENT_CATALOGER**	**N – new field**	**Login ID of the terminal. (Login ID of counter staff if transaction done over the counter)** **ALEPH to update Z31_PAYMENT_CATALOGER information with Terminal Login ID for each Z31_REC_KEY sent as EK.**

SIP2 Message 38 – Fee Paid Response

The ACS must send this message in response to the Fee Paid message

<payment accepted><transaction date><institution id><patron identifier><transaction id><screen message><print line>

Message 38 fields	**Code**	**ALEPH Mapping**	**SIP2 Standard?**	**Remarks**
Payment Accepted			Y	Y / N
Transaction Date		Z31_PAYMENT_DATE_KEY	Y	
Institution ID	AO	Z31_SUB_LIBRARY	Y	
Patron Identifier	**AA**	**Z308_REC_KEY**	**Y**	
Transaction ID	BK		Y	
Screen Message	AF		Y	Optional Field. To leave blank
Print Line	AG		Y	Optional Field. To leave blank
E- Transaction ID	**BZ** **ER**	**Z31_EPAYMENT_ID** **Z31_PAYMENT_RECEIPT NUMBER**	**N - New**	**Multiple and Repeating. Transaction ID of the committed**

				transaction. Field sent for each committed transaction. **ER is the ALEPH Receipt Number.** **e-Payment Kiosk to update its transaction table with the ALEPH Receipt Number**

3 Payment via ALEPH GUI Staff User

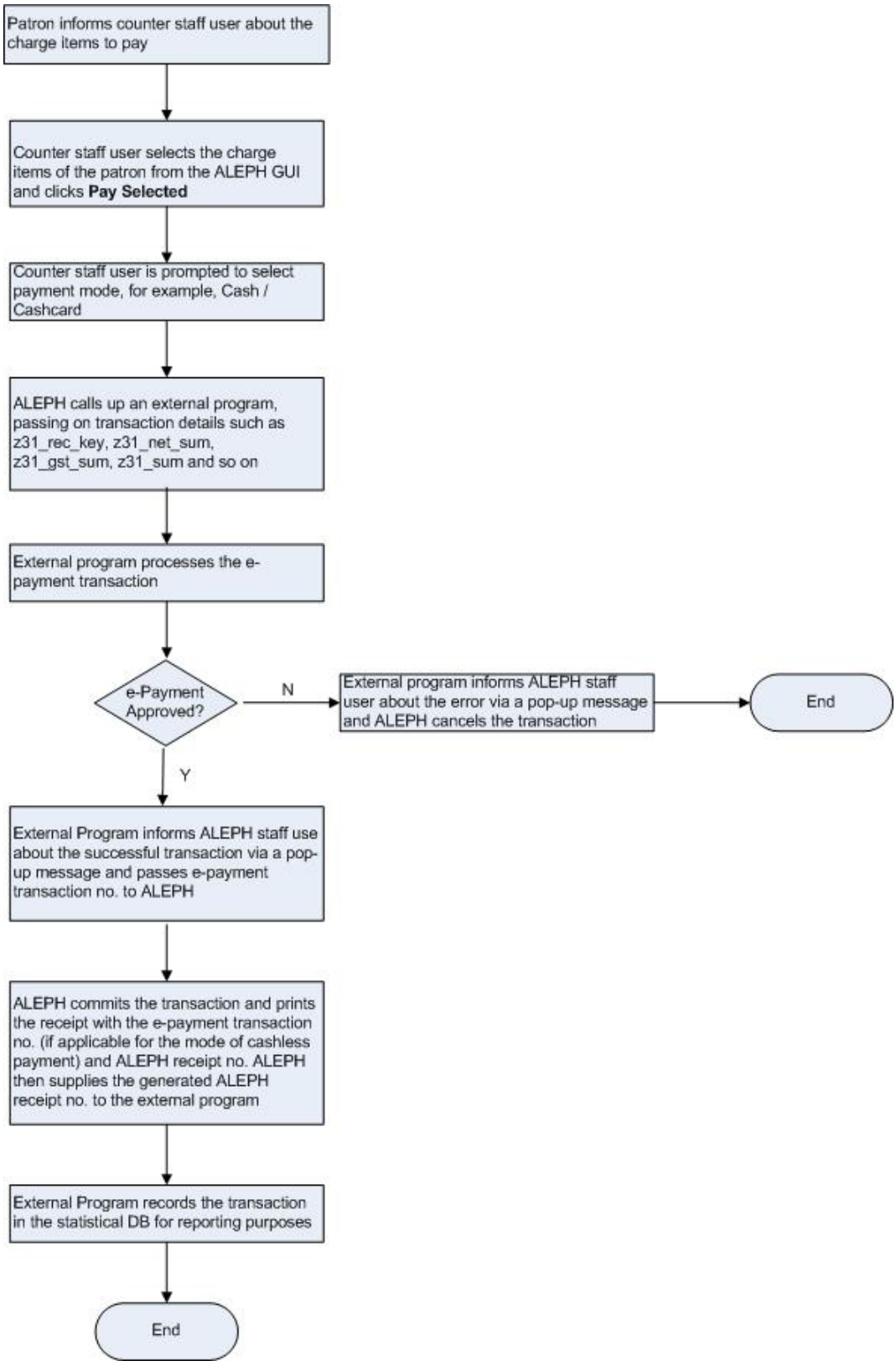

Figure 3 Workflow of ALEPH staff user processing e-Payment

3.1 Setting up tab_external_program

To enable the connection between your ALEPH GUI and the external program, the $alephe_tab/tab_external_program table has to be configured correctly.

Example:

```
!
!         1                        2                              3
!!!!!!!!!!!!!!!!!!!!-!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!-
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!>
PAYMENT-MODE-10       payment_mode_10.pl              z31-rec-key z31-
net-sum z31-gst-sum z31-sum z31-sub-library client-ip-address
```

Column 1: program identifier

Column 2: external program (should be located in $aleph_ext)

Column 3: parameters; parameters can be fields from the Oracle Z tables key parameters (client-ip-address) or constants

The external program should be able to read the information from STDIN. The reply (STDOUT) can contain values: Reply value (numeric, two digits) and a reply message.

Example:

```
#!/exlibris/aleph/a16_1/product/bin/perl
# Reading parameter
$z31_rec_key=<STDIN>;
$z31_net_sum=<STDIN>;
$z31_gst_sum=<STDIN>;
$z31_sum=<STDIN>;
$z31_sub_library=<STDIN>;
$client_ip_address=<STDIN>;
.
.
.
# Reply
printf("00\n");                      # Error code
printf"("Cash performed\n");          # Error message
```

4 Glossary

Term	Explanation
Cashcard	This a stored value card where payment is deducted directly from the cash stored in the card. No online transaction with a clearing house is involved.
e-Payment Kiosk	A standalone machine where patron will perform self service cashless payment. This kiosk is like the 3M Self-Check machine where it will communicate with ALEPH via a protocol to update the charge information.
Ez-Link	This is another stored value card similar to Cashcard.
NETS	A clearing house for electronic payments. A NETS transaction is an online debit transaction. Payment with NETS will have an e-Payment transaction number.
Self-Check machine	The 3M Self-Check machine for loan/renewal/returns using SIP1/SIP2 protocol to communicate with ALEPH via the SIP server
SIP2 message	SIP2 protocol from 3M